Two *Volvarina* (Marginellidae) from deep waters off Northern Honduras.

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ABSTRACT. Two new species of *Volvarina, V. bessei* sp. nov. and *V. hennequini* sp. nov., are described from circalittoral and bathyal levels off Northern Honduras. The soft parts of live animals and their radulae are presented. The phyletic relationships of both species are discussed.

RESUME. Deux nouvelles espèces de *Volvarina, V. bessei* sp. nov. et *V. hennequini* sp. nov., sont décrites de l'étage circalittoral et du bathyal du Nord Honduras. Les parties molles des animaux vivants et leurs radulae sont présentées. Les relations phylétiques des deux espèces sont discutées.

INTRODUCTION

The small and micro marine molluscs from deep levels of Caribbean sea and adjacent basins remain very badly known. Most of such species were described from some oceanographic campaigns by few authors, as Dall describing material from Survey Steamer Blake (1881 and 1889) or from Fisheries Steamer Albatross (1890 and 1927), or Bayer (1971) describing material from Research Vessels Gerda and J.E. Pillsbury.
The Bay of Honduras is to be considered as an unexplored place at circalittoral and bathyal levels, although this area is henceforth renowned as sheltering important endemisms, especially in small and micro gastropods (Vokes and Vokes, 1983 ; Petuch, 1988).
As far as Marginellid gastropods are concerned, several species dredged in Bay of Honduras and described in XIX° century have not been found later, like *Persicula multilineata* (Sowerby, 1846) or *Prunum hondurasensis* (Reeve, 1865).

At the end of XX° century, the Bay Islands, located off the continental shelf of Northern Honduras, were sampled in shallow waters and many species were brought to light, among them many Marginellids apparently undescribed (Lipe, 1991). However, the recolts brought in recent times from fisheries trawlers working in Bay of Honduras only contained large species, and small or micro shells were never recorded from deep levels.
So, the recent discovery of two species of *Volvarina* from circalittoral and bathyal levels off the northern coasts of Honduras presents a special interest and deserves a presentation. These two species being apparently new to science, their description is proposed and their biogeography is commented.

Material and methods

The material studied comes from 2 lots of specimens obtained by Bruno Besse and Francis Hennequin while boarding on trawlers fishing at great depths off the northern coast of Honduras (08-99). Live specimens were photographied with a macro-camera under natural light as crawling in a dish. Complementary colour drawings were supplied. Most of the specimens were conserved in dry condition, some few were conserved in 70 % alcohol.
The radulae were extracted by Emilio Rolan from wet animals of juvenile and subadult specimens. SEM pictures of radulae were taken in CACTI-University of Vigo (Spain). Photographs of dry and wet shells were made by Andrew Wakefield with a macro-camera equipped of a ring-flash.

Abbreviations used

MNHN : Muséum national d'Histoire naturelle, Paris.
USNM : The National History Museum, Washington.
CAW : Collection Andrew Wakefield (Great Britain).
CBB : Collection Bruno Besse (Honduras).
CFB : Collection Franck Boyer (France).
CGP : Collection Guido Poppe (Belgium).

SYSTEMATICS

Genus *Volvarina* Hinds, 1844.
Type species : *Marginella nitida* Hinds, 1844 (subsequent designation by Redfield, 1871), junior synonym of *Volvarina mitrella* (Risso, 1826).

Volvarina bessei sp. nov.
Figs 1 - 8

Type material.

Holotype (15 x 6.9 mm) MNHN (Figs. 1 - 3).
Paratype 1 (17.2 x 7.7 mm) CAW (Figs. 4 - 6).
Paratype 2 (15.7 x 7.2 mm) and paratype 3 (juvenile: 12.3 x5.9 mm) CFB.

Other material examined.

1 spm in Coll. Berthelot (France), 1 spm in Coll. Lepetit (France), 1 spm in Coll. Hubrecht (Belgium), 2 spm in CGP, 4 spm in CBB. All adult specimens from the type locality.

Type locality.

Off Puerto Cortes, Northern Honduras. Trawled at 120 - 130 m.

Description.

Shell (Figs. 1 - 6) : The shell is slender suboval, length 15 to 17.2 mm width 6.9 to 7.7 mm .
The spire of about 4 whorls is very short. The apex is teat-like. The labrum is inserted at the level of the second whorl, strongly curved at the level of the anal canal, then runs very straight along a somewhat narrow aperture. The inner labrum bears a dozen of low and spaced denticles. The external margin is wide, moderately thickened and deeply stepped.
The base of the shell makes a very angular ram at the level of the first columellar plait. Four columellar plaits are visible, somewhat oblique, the two lowest ones are thick, long and both present a sigmoid shape. The third plait is medium sized. The fourth one is very small.
The general colour is horny-yellow. The labrum and the base of the columella are white. The prominent protoconch is dark reddish-carmine. Three thin reddish-brown thin spiral lines run on the last whorl. The first one is situated just under the lower suture, the second one at the middle of the whorl and the last one at the second third of the whorl. These lines slightly extend over the labial margin.

Animal (Fig.7) : The foot is large, truncated at the anterior part and rounded at the posterior part. Its ground is hyalinous. A reddish-brown stripe runs near to the external borders of the foot. The mentum in front of the foot is creamy light orange, and also fringed by a reddish-brown stripe. The external and posterior sides of the foot are flecked of small white spots, extending over the bordering stripe.
The long tentacles and siphon are mottled of browny stains and whitish dots. The head is orange-brown with whitish flecks. The eyes are black and lean against a white back. Visible through the shell, the internal mantle presents blackish patches veined of dull-beige intervals. The external mantle was not observed.

Radula (Fig.8) : A radula was extracted from a large juvenile (paratype 3). The comblike radula is made of 35 plates sizing about 140 µm of width. Each plate bears around 21 - 22 big and small cusps, arranged according an average alternation of bbssbsssbsssssssbssbsb.

Habitat.

In various sediments at the foot of submarine cliffs, circalittoral level.

Distribution.

Only known from the type locality.

Remarks.

The species presents very original features, as well as for the shell morphology than for the chromatism of the soft parts. There is not any species comparable to *V. bessei* sp. nov. in the literature, except *Volvarina canilla* (Dall, 1927) from southeast coasts of USA, also from deep waters and figured by Kaicher as *Prunum canillum* (1973, pack 1, card 29). However, *V. canilla* is just comparable for the angular ram at the base of its shell, narrow aperture and faint labial denticles, but it differs in all other ways. Without further elements about *V. canilla*, there is no matter to infer a close phyletic relationship between both species.

Etymology.

From Bruno Besse, one of the two discoverers of the species.

Volvarina henneqnini sp. nov.
Figs 9 - 16

Type material :
Holotype (14.7 x 6.75 mm) MNHN (Figs. 9- 11).
Paratype 1 (16.1 x 7.8 mm) CAW (Figs. 12 - 14).
Paratypes 2 (14.6 x 6.9 mm), 3 (13.95 x 6.45 mm) and 4 (13.9 x 6.7 mm) adult spm, CFB.
Paratypes 5 (13.35 x 6.1 mm) and 6 (13.15 x 6 mm) juvenile spm, CFB.

Paratype 7 (13.5 x 6.4 mm) Coll. T. Mc Cleery (Guernsey).

Other material examined.

1 spm in Coll. Lepetit (France), 15 spm in CGP, 2 spm in CBB. 5 juvenile specimens ranging from L = 11.7 mm to L = 5.8 mm are also in CFB.

Type locality.

Off Omoa, Northern Honduras. Trawled at 420 - 480 m.

Description.

Shell (Figs 9-14) : The shell is somewhat biconical, length 13 to 16 mm width 6 to 7.8 mm. The high and wide blunt spire measures 1:3 of the total length, but presents only 2.5 whorls. The suture runs irregularly and has a teared look.
The labrum is inserted very low on the body whorl. It is moderately curved at the level of the anal canal and inflexed in its medium part. The inner part of the labrum is smooth, the external margin is strongly thickened but narrow. The aperture is widening towards the anterior part.
The base of the shell is rounded. The columella bears 4 very oblique plaits. The last one, being very drawn into the aperture, is not visible on the figures (Figs. 9 and 12).
The general colour is medium orange-brown, with a wide whitish gap at the base of the first whorls and at the level of the shoulder on the body whorl. The labrum is mostly whitish, but orange towards the dorsal anterior part, on its central edge and around the siphonal and anal canals. The suture is white and the adjacent part below is creamy light orange.
Animal (Fig. 15) : The very large foot with truncated anterior part and very rounded metapodium is subhyalinous whitish grey. The mentum as well as the long siphon and tentacles are more opaque whitish grey. The black eyes are well visible. The internal mantle is not visible through the shell. The external mantle is subhyalinous whitish grey.

Radula (Fig. 16) : Two radulae were extracted from two large juveniles (paratypes 5 and 6). One radula was broken in several pieces, but 32 plates have been scored. The other radula was complete, with 35 plates and a width size of 200 µm (sample figured). Each plate bears around 30 to 36 big and small cusps, arranged according to an average alternation of ssbsbsssbsssbsssbsbsssbssbsbs.

Habitat.

In muddy/silty sediments, on bathyal plains.

Distribution.

Only known from the type locality, by 3 trawlings performed along a journey of 20 kms.

Remarks.

It is to be noted that *V. hennequini* sp. nov. is known through 23 adult specimens and several juveniles, trawled in 3 stations distributed along a distance of 20 kms, and that all these shells present very homogeneous features. So, it can be assumed that this material is representative of the variability of the species.
V. hennequini superficially resembles *Marginella yucatecana* Dall, 1881 and *Marginella abyssorum* Tomlin,1916, replacing name for *Marginella seminula* Dall 1881 (not Gould). In fact, *M. yucatecana* and *M. abyssorum* were both fished in the same station from Yucatan Strait, down to 640 fathoms (1.153 m), and they are said to differ just by the length of the spire (Dall,1881, 72). As the variability of both taxa is unknown, it is not possible in the present state to say if they are the same species or not.
A syntype of *Marginella yucatecana* was figured by Kaicher (1992, pack 60, card 6126) as belonging to the genus Dentimargo. The shell presents several evident differences with *V. hennequini* : its total length is twice smaller (holotype : 5.93 x 3.25 mm in Coovert 1999, p.37), the spire is lower, the labrum is not inflexed, the base is not rounded and the siphonal canal makes a deep notch, the general colour is white, the general outline is more angular.
Further inquiries would allow to state on the relative phyletic distance between both species. On the other hand, their similarities (like the general shell pattern, oblique plaits, wide aperture, etc) allow to place *M. yucatecana,* in the genus *Volvarina*, instead of in *Dentimargo* as proposed by Kaicher (1992) and Coovert (1999). The radula is lacking in the few species of *Dentimargo* which were checked for this character (Coovert, 1989,7), whereas *V. hennequini* is proved to have a comblike radula, typical of the genus *Volvarina*, and *V. yucatecana* is supposed to have too.

Etymology.

From Francis Hennequin, one of the two discoverers of the species.

DISCUSSION.

As a possible representant at circalittoral levels of the Honduran Secondary Relict Pocket (Petuch, 1988), *Volvarina bessei* sp. nov. may have living relatives in several places of the Greater Antilles and along the eastern slopes of Central America. The comparison with *V. canilla* suggests the possible occurrence of a diversified group of species (the group *V. canilla*) distributed at circalittoral levels around the northern part of Caribbean.

V. hennequini sp. nov. seems to belong to a group *V. yucatecana* ranging at bathyal levels from Yucatan Strait to Gulf of Honduras. In fact, such a group holds probably the capacity to settle most of the northern and western sides of the Caribbean sea, as numerous submarine formations in this area offer large fields of distribution at bathyal levels. In these places, the ecologic conditions seem to have been fairly preserved from drastic events since the Pliocene. Such conditions are generally favourable to the conservation of old groups.

V. ingolfi Bouchet and Waren, 1985, fished at 1776 m. in northeastern Atlantic, shows close similarities with *V. hennequini* sp. nov. and could belong to a same earl-tethyan group.

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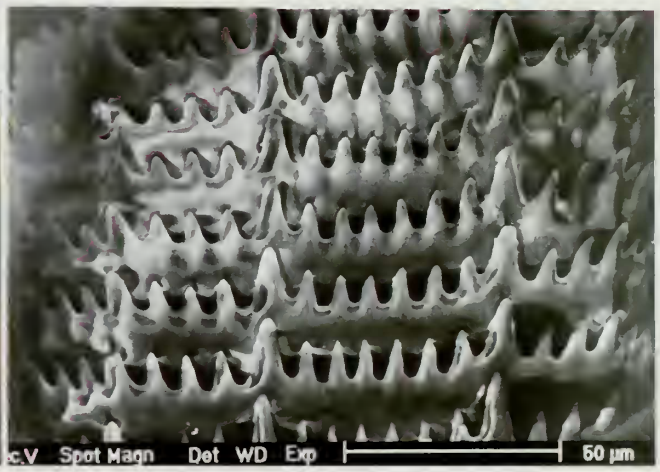

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Figures 1-8

1-3. *Volvarina bessei* sp. nov. Puerto Cortes, 120-130 m. Holotype MNHN, 15 x 6.9 mm
4-6. *Volvarina bessei* sp. nov. Paratype 1 CAW, 17.2 x 7.7 mm.
7. Live animal of *Volvarina bessei* sp. nov. Shell length : 16 mm.
8. Radula of *Volvarina bessei* sp. nov. (scale bar : 50 µm).

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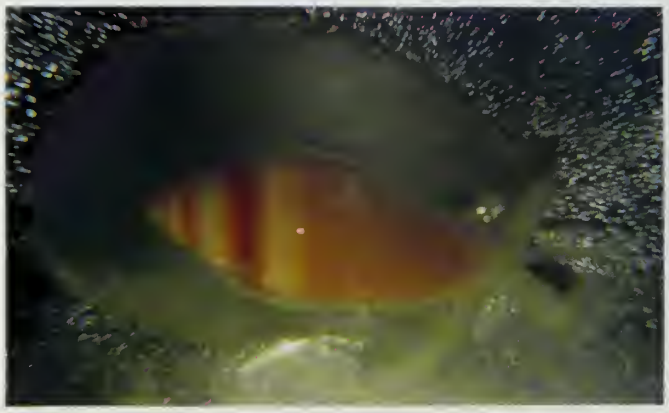

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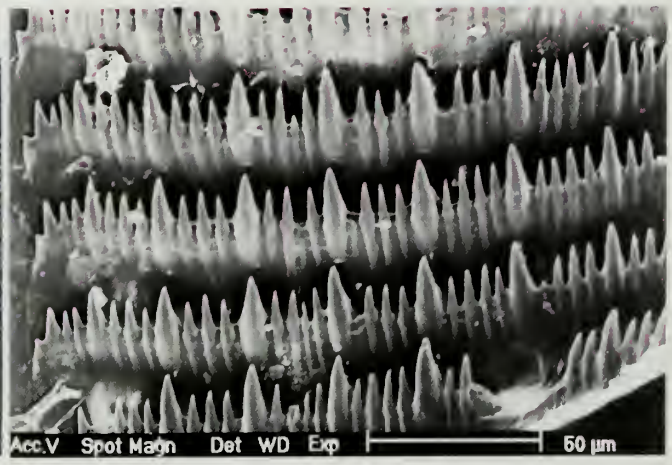

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Figures 9-16

9-11. *Volvarina henriquini* sp. nov. Omoa, 420-480 m. Holotype MNHN, 14 x 6.75 mm.
12-14. *Volvarina henriquini* sp. nov. Paratype 1 CAW, 16.1 x 7.8 mm
15. Live animal of *Volvarina henriquini* sp. nov. Shell length : 14 mm.
16. Radula of *Volvarina henriquini* sp. nov. (scale bar : 50 µm).